

Ian S. Gilman, Ph.D.

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Professional appointments

National Science Foundation Postdoctoral Research Fellow in Biology 2023 – Present
(Area 3: Plant Genome)
Hosted by Dr. Robert VanBuren, Michigan State University, East Lansing, MI

Education

Ph.D., Ecology & Evolutionary Biology 2023
Yale University, New Haven, CT

M.S., Ecology & Evolutionary Biology 2021
Yale University, New Haven, CT

M.S., Biological Sciences 2017
University of Idaho, Moscow, ID

B.S., Physics 2015
Bucknell University, Lewisburg, PA

Publications

- **Ian S. Gilman**, Karolina Heyduk, Carlos A. Maya-Lastra, Lillian P. Hancock, Erika J. Edwards. 2024. Predicting photosynthetic pathway from anatomy using machine learning. *New Phytologist* accepted
- Rowan F. Sage, **Ian S. Gilman**, J. Andrew C. Smith, Katia Silvera, Erika J. Edwards. 2023. Atmospheric CO₂ decline and the timing of CAM plant evolution. *Annals of Botany* mcad122
- **Ian S. Gilman**, J. Andrew C. Smith, Joseph A.M. Holtum, Rowan F. Sage, Katia Silvera, Klaus Winter, Erika J. Edwards. 2023. The CAM lineages of planet Earth. *Annals of Botany* mcad135
- Jose J. Moreno-Villena, Haoran Zhou, **Ian S. Gilman**, S. Lori Tausta, C. Y. Maurice Cheung, Erika J. Edwards. 2022. Spatial resolution of an integrated C₄+CAM photosynthetic metabolism. *Science Advances* 8:eabn2349
- **Ian S. Gilman**, Jose Moreno-Villena, Zachary R. Lewis, Eric W. Goolsby, Erika J. Edwards. 2022. Gene co-expression reveals the modularity and integration of C₄ and CAM in *Portulaca*. *Plant Physiology* 189: 735–753
- Aaron K. Lee*, **Ian S. Gilman***, Mansa Srivastav, Ariel D. Lerner, Michael J. Donoghue, Wendy L. Clement. 2021. Reconstructing Dipsacales phylogeny using Angiosperms353: Issues and insights. *American Journal of Botany*. 108(7): 1122–1142
* indicates equal authorship
- **Ian S. Gilman** and Erika J. Edwards. Crassulacean Acid Metabolism. 2020 *Current Biology*. 30 (2), R57–R62

- Karolina Heyduk, Jose J. Moreno-Villena, **Ian S. Gilman**, Pascal-Antoine Christin, Erika J. Edwards. 2019. The genetics of convergent evolution: Insights from plant photosynthesis. *Nature Reviews Genetics*. 313:1–9
- Christopher T. Martine, Ingrid E. Jordon-Thaden, Angela J. McDonnell, Jason T. Cantley, Daniel S. Hayes, Morgan D. Roche, Emma S. Frawley, **Ian S. Gilman**, David C. Tank. 2019. Phylogeny of the Australian *Solanum dioicum* group using seven nuclear genes: testing Symon’s fruit and seed dispersal hypotheses. *PLoS ONE*. 14:e0207564
- **Ian S. Gilman** and Tank David C. Species tree estimation using ddRADseq data from historical specimens confirms the monophyly of highly disjunct species of *Chloropyron* (Orobanchaceae). 2018. *Systematic Botany*. 43(3):701–708

Selected presentations and invited lectures

- **Ian S. Gilman**, Karolina Heyduk, Carlos A. Maya-Lastra, Lillian P. Hancock, Erika J. Edwards. 2023. Evolution of CAM anatomy and predicting physiology from anatomy. Botany Conference, Boise, ID.
- **Ian S. Gilman**, Karolina Heyduk, Carlos A. Maya-Lastra, Lillian P. Hancock, Erika J. Edwards. 2023. Evolution of CAM anatomy and predicting physiology from anatomy. CAM Conference, Panama City, Panama.
- **Ian S. Gilman**. 2023. Photosynthesis and Evolution by Duplication. Invited lecture at the Yale Peabody Museum, New Haven, CT.
- **Ian S. Gilman**. 2023. Plant carbon concentrating mechanism and the changing climate. Invited lecture for Molecular Biology & Biophysics 365/565, Yale University, New Haven, CT.
- **Ian S. Gilman**, Jose J. Moreno-Villena, Zachary R. Lewis, Eric W. Goolsby, Erika J. Edwards. 2021. Gene co-expression reveals the modularity and integration of C₄ and CAM in *Portulaca*. Botany Conference. Virtual.
- **Ian S. Gilman**, Jose J. Moreno-Villena, Zachary R. Lewis, Eric W. Goolsby, Erika J. Edwards. 2021. Gene co-expression reveals evolutionarily conserved and distinct photosynthetic networks in C₄+CAM *Portulaca*. Evolution Conference. Virtual.
- **Ian S. Gilman**, Erika J. Edwards, Zachary R. Lewis. 2020. Genome sequencing of *Portulaca amilis*, a C₄+CAM plant. International Plant & Animal Genome Conference. San Diego, CA.
- **Ian S. Gilman** and Erika J. Edwards. 2019. Using computer vision to detect CAM photosynthesis. Sussex Plant Symposium. New Haven, CT.
- **Ian S. Gilman** and Erika J. Edwards. 2018. Distinguishing CAM photosynthesis with machine learning. Botany Conference. Rochester, WI.
- **Ian S. Gilman**, Lillian P. Hancock, Elissa Martin, Zachary R. Lewis, Erika J. Edwards. 2018. Changes in gene expression during CAM induction in a C₄-CAM plant. CAM Conference. Phoenix, AZ.
- **Ian S. Gilman** and David C. Tank. 2017. Sensitivity of quartet-based species tree methods to missing data. Evolution Conference. Portland, OR.
- **Ian S. Gilman** and David C. Tank. 2016. Comparative phylogenetics of niche condition in *Cordylanthus* and *Pseudocordylanthus* (Orobanchaceae). Botany Conference. Savannah, GA.

Teaching and mentorship

Preparing Leaders and Nurturing Tomorrow's Scientists (PLANTS) Mentor	2016, 2023
Graduate teaching fellow, Yale University <i>Courses: Ecology and Evolutionary Biology, Plants and People, Plant Diversity</i>	2017–2019
Scientist mentor, Planting Science (plantingscience.org) <i>Encourage and guide students as they create plant-based experiments</i>	2016–2019
Graduate teaching assistant, University of Idaho <i>Courses: Form and Function, Computational Skills for Biologists, Advanced Field Botany</i>	2015–2017
Graduate research mentor, University of Idaho <i>Mentored undergraduate in plant identification, taxonomy, and specimen collection and preparation</i>	2016